

JAPANESE

[JP,11-018130,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE
INVENTION TECHNICAL PROBLEM MEANS DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

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CLAIMS

[Claim(s)]

[Claim 1] Migration communication system characterized by providing the mobile station which has a means to choose the suitable base transceiver station for a message based on the base transceiver station which has a means to transmit the data showing the activity ratio of control information and a message channel through a control channel, and the data which express the activity ratio of the message channel sent from a base transceiver station through the field strength of said control channel, and this control channel in case call origination is carried out.

[Claim 2] The mobile station of the migration communication system characterized by providing a means to choose the suitable base transceiver station for a message, based on the data showing the activity ratio of the message channel sent from a base transceiver station through the field strength of a control channel, and a control channel in case call origination is carried out.

[Claim 3] The base transceiver station of the migration communication system characterized by providing a means to transmit the data showing the activity ratio of control information and a message channel through a control channel.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Field of the Invention] This invention relates to the so-called cellular type of migration communication system list in the mobile station and base transceiver station of this migration communication system.

[0002]

[Description of the Prior Art] In the conventional migration communication system, when a mobile station carries out call origination, after a mobile station's measuring the reinforcement of the electric wave from a base transceiver station, scanning the control channel of the base station of the strongest electric field and sending out dispatch information to a base station by the channel, it is made to talk by the message channel specified from the base station over the telephone.

[0003]

[Problem(s) to be Solved by the Invention] By the way, the conventional migration communication system mentioned above had the following problems.

(1) When carrying out call origination of the mobile station, receive the control channel of the base transceiver station which is around it, and electric field scan a strong channel most in it. For this reason, if there is a good base station of a prospect from a mobile station, it will scan to the control channel of the base station of the direction with a sufficient prospect instead of the base station near the mobile station. Consequently, the call from each mobile station will concentrate on the specific base station in the good location of a prospect.

(2) In order that a call may concentrate on a specific base station as mentioned above, many message channels must be installed in the base station. When many message channels are installed in a specific base station in this way, it becomes impossible however, to carry out repeat use of the same frequency near the base station. For this reason, the problem that a deployment of a frequency cannot be aimed at arises.

[0004] This invention is made in view of the situation explained above, and it aims at providing with the mobile station and base transceiver station of this migration communication system the migration communication system list which can aim at distribution of traffic so that a call may not concentrate on a specific base transceiver station.

[0005]

[Means for Solving the Problem] Invention concerning claim 1 makes a summary migration communication system characterized by to provide the mobile station which has a means choose the suitable base transceiver station for a message based on the data which express the activity ratio of the message channel sent from a base transceiver station through the field strength of said control channel, and this control channel as it in case call origination is carried out to the base transceiver station which has a means transmit the data showing the activity ratio of control information and a message channel through a control channel.

[0006] In case call origination of the invention concerning claim 2 is carried out, it makes a summary the mobile station of the migration communication system characterized by providing a means to choose the suitable base transceiver station for a message, based on the data showing

the activity ratio of the message channel sent from a base transceiver station through the field strength of a control channel, and a control channel.

[0007] Invention concerning claim 3 makes a summary the base transceiver station of the migration communication system characterized by providing a means to transmit the data showing the activity ratio of control information and a message channel through a control channel.

[0008]

[Embodiment of the Invention] Hereafter, the gestalt of implementation of this invention is explained with reference to a drawing. Drawing 1 is drawing showing the configuration of the migration communication system which is 1 operation gestalt of this invention. As for 1-5, in this drawing, a base transceiver station and 6 are mobile stations.

[0009] In this migration communication system, when a mobile station 6 carries out call origination, a mobile station 6 receives the data which notify the message channel activity ratio sent through each control channel from the surrounding field strength and each surrounding base transceiver station of a control channel of base transceiver stations 1-5. At this time, the station which has the received field strength more than a default as a base transceiver station which can talk over the telephone first is chosen with a mobile station 6. Then, when there are two or more stations of a candidate, what has the lowest activity ratio is chosen in the message channel activity ratio notified from a base transceiver station, the base transceiver station which has notified that message channel activity ratio is chosen, and call origination actuation is started.

[0010] Drawing 2 is the block diagram showing the configuration of the exchange 7 in this operation gestalt, and base transceiver stations 1 and 2. In addition, it has the configuration as the base transceiver stations 1 and 2 in drawing 2 with other same base transceiver stations 3-5 in drawing 1 R> 1. Transmitting [base transceiver stations 1 and 2] under control by the control device 11 and receiving a control signal through a control channel by the control channel transmitter-receiver 12 respectively, a message signal is transmitted in drawing 2 and received through a message channel by the message channel transmitter-receiver 13. Moreover, each base transceiver station transmits the data in which the activity ratio of a message channel is shown in a control channel via the control channel transmitter-receiver 12.

[0011] Hereafter, actuation of this operation gestalt is explained. First, a mobile station 6 is explained using drawing 3 about this condition, although the control channel discharged from base transceiver stations 1-5 is received. Field strength of the control channel of the base transceiver stations 1-5 received by the mobile station 6 is set to 8, 25, 22, 20, and 14dBmV. If the value of the electric field which can talk over the telephone is set up with 15 or more dBmV at this time, it will become the candidate station to which base transceiver stations 2, 3, and 4 can telephone.

[0012] The mobile station 6 has received the activity ratio of a message channel through a control channel at this time, and supposing the message channel activity ratio of a base transceiver station 3 is the lowest of the two candidate stations of this time above, a mobile station will start call origination actuation using the control channel of a base transceiver station 3. Thereby, in case a mobile station performs call origination, since it is lost that electric field always choose a strong office, it is lost that a call concentrates on a specific office and it can attain decentralization of the traffic of a base station.

[0013]

[Effect of the Invention] According to [as explained above] this invention, a mobile station can prevent that a call concentrates on a specific base transceiver station in order to choose the base transceiver station where the activity ratio of a message channel is the lowest from the base transceiver stations which can talk over the telephone and to start message actuation, when carrying out call origination, and it is effective in the ability to aim at a deployment of equal arrangement of the number of message channels which this installs in a base transceiver station, and a frequency.

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TECHNICAL FIELD

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PRIOR ART

[Description of the Prior Art] In the conventional migration communication system, when a mobile station carries out call origination, after a mobile station's measuring the reinforcement of the electric wave from a base transceiver station, scanning the control channel of the base station of the strongest electric field and sending out dispatch information to a base station by the channel, it is made to talk by the message channel specified from the base station over the telephone.

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EFFECT OF THE INVENTION

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] By the way, the conventional migration communication system mentioned above had the following problems.

(1) When carrying out call origination of the mobile station, receive the control channel of the base transceiver station which is around it, and electric field scan a strong channel most in it. For this reason, if there is a good base station of a prospect from a mobile station, it will scan to the control channel of the base station of the direction with a sufficient prospect instead of the base station near the mobile station. Consequently, the call from each mobile station will concentrate on the specific base station in the good location of a prospect.

(2) In order that a call may concentrate on a specific base station as mentioned above, many message channels must be installed in the base station. When many message channels are installed in a specific base station in this way, it becomes impossible however, to carry out repeat use of the same frequency near the base station. For this reason, the problem that a deployment of a frequency cannot be aimed at arises.

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MEANS

[Means for Solving the Problem] Invention concerning claim 1 makes a summary migration communication system characterized by to provide the mobile station which has a means choose the suitable base transceiver station for a message based on the data which express the activity ratio of the message channel sent from a base transceiver station through the field strength of said control channel, and this control channel as it in case call origination is carried out to the base transceiver station which has a means transmit the data showing the activity ratio of control information and a message channel through a control channel.

[0006] In case call origination of the invention concerning claim 2 is carried out, it makes a summary the mobile station of the migration communication system characterized by providing a means to choose the suitable base transceiver station for a message, based on the data showing the activity ratio of the message channel sent from a base transceiver station through the field strength of a control channel, and a control channel.

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[0008]

[Embodiment of the Invention] Hereafter, the gestalt of implementation of this invention is explained with reference to a drawing. Drawing 1 is drawing showing the configuration of the migration communication system which is 1 operation gestalt of this invention. As for 1-5, in this drawing, a base transceiver station and 6 are mobile stations.

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[0010] Drawing 2 is the block diagram showing the configuration of the exchange 7 in this operation gestalt, and base transceiver stations 1 and 2. In addition, it has the configuration as the base transceiver stations 1 and 2 in drawing 2 with other same base transceiver stations 3-5 in drawing 1 R> 1. Transmitting [base transceiver stations 1 and 2] under control by the control device 11 and receiving a control signal through a control channel by the control channel transmitter-receiver 12 respectively, a message signal is transmitted in drawing 2 and received through a message channel by the message channel transmitter-receiver 13. Moreover, each base transceiver station transmits the data in which the activity ratio of a message channel is shown in a control channel via the control channel transmitter-receiver 12.

[0011] Hereafter, actuation of this operation gestalt is explained. First, a mobile station 6 is

explained using drawing 3 about this condition, although the control channel discharged from base transceiver stations 1-5 is received. Field strength of the control channel of the base transceiver stations 1-5 received by the mobile station 6 is set to 8, 25, 22, 20, and 14dBmV. If the value of the electric field which can talk over the telephone is set up with 15 or more dBmV at this time, it will become the candidate station to which base transceiver stations 2, 3, and 4 can telephone.

[0012] The mobile station 6 has received the activity ratio of a message channel through a control channel at this time, and supposing the message channel activity ratio of a base transceiver station 3 is the lowest of the two candidate stations of this time above, a mobile station will start call origination actuation using the control channel of a base transceiver station 3. Thereby, in case a mobile station performs call origination, since it is lost that electric field always choose a strong office, it is lost that a call concentrates on a specific office and it can attain decentralization of the traffic of a base station.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing showing the configuration of the migration communication system which is 1 operation gestalt of this invention.

[Drawing 2] It is the block diagram showing the configuration of the exchange and the base transceiver station in this operation gestalt.

[Drawing 3] It is drawing explaining the selection approach of the base transceiver station which the mobile station in this operation gestalt uses.

[Description of Notations]

1-5 Base transceiver station

6 Mobile Station

[Translation done.]

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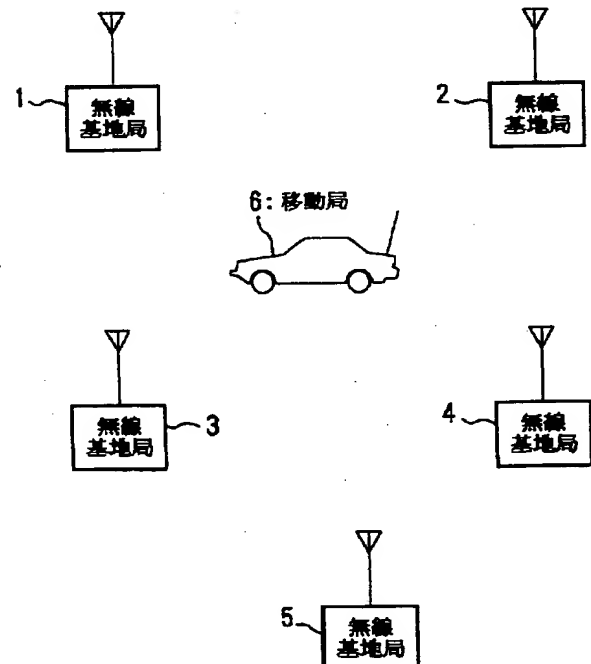
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(54) 【発明の名称】 移動通信システム並びに該移動通信システムの移動局および無線基地局

(57) 【要約】

【課題】 特定の無線基地局に呼が集中しないようトラフィックの分散を図ることができる移動通信システムを提供する。

【解決手段】 無線基地局 1～5 は、制御情報および通話チャンネルの使用率を表すデータを制御チャンネルを介して送信する。移動局 6 は、発呼する際、制御チャンネルを介して各無線基地局から送られてくる制御情報および通話チャンネルの使用率を表すデータに基づき、通話に適切な無線基地局を選択する。



【特許請求の範囲】

【請求項1】 制御情報および通話チャネルの使用率を表すデータを制御チャネルを介して送信する手段を有する無線基地局と、

発呼する際、前記制御チャネルの電界強度および該制御チャネルを介して無線基地局から送られてくる通話チャネルの使用率を表すデータに基づき、通話に適切な無線基地局を選択する手段を有する移動局とを具備することを特徴とする移動通信システム。

【請求項2】 発呼する際、制御チャネルの電界強度および制御チャネルを介して無線基地局から送られてくる通話チャネルの使用率を表すデータに基づき、通話に適切な無線基地局を選択する手段を具備することを特徴とする移動通信システムの移動局。

【請求項3】 制御情報および通話チャネルの使用率を表すデータを制御チャネルを介して送信する手段を具備することを特徴とする移動通信システムの無線基地局。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】この発明は、いわゆるセルラ型の移動通信システム並びに該移動通信システムの移動局および無線基地局に関する。

【0002】

【従来の技術】従来の移動通信システムにおいては、移動局が発呼する場合に、移動局は無線基地局からの電波の強度を測定し、最も強い電界の基地局の制御チャネルをスキャンし、そのチャネルで発信情報を基地局に送出した後、基地局から指定された通話チャネルで通話を行うようにしていた。

【0003】

【発明が解決しようとする課題】ところで、上述した従来の移動通信システムは、以下の問題を有していた。

(1) 移動局は、発呼する場合に、その周辺にある無線基地局の制御チャネルを受信し、その中で一番電界が強いチャネルをスキャンする。このため、移動局から見通しの良い基地局があれば、移動局の近くにある基地局ではなく見通しの良い方の基地局の制御チャネルにスキャンすることとなる。この結果、見通しの良い位置にある特定の基地局に各移動局からの呼が集中してしまうこととなる。

(2) 上記のように特定の基地局に呼が集中するため、その基地局に多くの通話チャネルを設置しなければならない。しかし、このように特定の基地局に多くの通話チャネルを設置すると、その基地局の近くでは同じ周波数の繰り返し使用をすることができなくなる。このため、周波数の有効利用を図ることができないという問題が生じる。

【0004】この発明は以上説明した事情に鑑みてなされたものであり、特定の無線基地局に呼が集中しないようトラフィックの分散を図ることができる移動通信シ

テム並びに該移動通信システムの移動局および無線基地局を提供することを目的とするものである。

【0005】

【課題を解決するための手段】請求項1に係る発明は、制御情報および通話チャネルの使用率を表すデータを制御チャネルを介して送信する手段を有する無線基地局と、発呼する際、前記制御チャネルの電界強度および該制御チャネルを介して無線基地局から送られてくる通話チャネルの使用率を表すデータに基づき、通話に適切な無線基地局を選択する手段を有する移動局とを具備することを特徴とする移動通信システムを要旨とする。

【0006】請求項2に係る発明は、発呼する際、制御チャネルの電界強度および制御チャネルを介して無線基地局から送られてくる通話チャネルの使用率を表すデータに基づき、通話に適切な無線基地局を選択する手段を具備することを特徴とする移動通信システムの移動局を要旨とする。

【0007】請求項3に係る発明は、制御情報および通話チャネルの使用率を表すデータを制御チャネルを介して送信する手段を具備することを特徴とする移動通信システムの無線基地局を要旨とする。

【0008】

【発明の実施の形態】以下、図面を参照し、この発明の実施の形態について説明する。図1はこの発明の一実施形態である移動通信システムの構成を示す図である。この図において、1～5は無線基地局、6は移動局である。

【0009】この移動通信システムにおいて、移動局6が発呼する場合、移動局6は周辺の無線基地局1～5の制御チャネルの電界強度および各無線基地局から各制御チャネルを介して送られる通話チャネル使用率を通知するデータを受信する。このとき移動局6ではまず通話可能な無線基地局として既定値以上の受信電界強度がある局を選択する。この後、候補の局が複数あった場合は、無線基地局から通知される通話チャネル使用率の中で最も使用率が低いものを選択し、その通話チャネル使用率を通知してきた無線基地局を選択し、発呼動作に入る。

【0010】図2は本実施形態における交換局7、無線基地局1、2の構成を示すブロック図である。なお、図1における他の無線基地局3～5も、図2における無線基地局1、2と同一の構成を有している。図2において、無線基地局1および2は、各々制御装置11による制御の下、制御チャネル送受信装置12により制御チャネルを介して制御信号を送受信を行い、通話チャネル送受信装置13により通話チャネルを介して通話信号の送受信を行う。また、各無線基地局は、通話チャネルの使用率を示すデータを制御チャネル送受信装置12を経由し、制御チャネルにて送信を行う。

【0011】以下、本実施形態の動作を説明する。まず、移動局6は、無線基地局1～5から発射された制御

チャンネルを受信するが、この状態について図3を用いて説明する。移動局6により受信された無線基地局1～5の制御チャンネルの電界強度を8、25、22、20、14 dB μ Vとする。このとき、通話可能な電界の値を15 dB μ V以上と設定すると、無線基地局2、3、4が通話可能な候補局となる。

【0012】移動局6は、このとき制御チャンネルを通して通話チャンネルの使用率を受信しており、このとき上記の2つの候補局の中で無線基地局3の通話チャンネル使用率が最も低いとすると移動局は無線基地局3の制御チャンネルを使用し発呼動作に入る。これにより、移動局が発呼を行う際、常に電界が強い局を選択することはなくなるため特定の局に呼が集中することはなくなり基地局のトラフィックの分散化を図ることができる。

【0013】

【発明の効果】以上説明したように、この発明によれば *

*ば、移動局は、発呼する場合に、通話可能な無線基地局の中から最も通話チャンネルの使用率が低い無線基地局を選択して通話動作に入るため、特定の無線基地局に呼が集中するのを防止することができ、これにより無線基地局に設置する通話チャンネル数の均等配置、周波数の有効利用を図ることができるという効果がある。

【図面の簡単な説明】

【図1】 この発明の一実施形態である移动通信システムの構成を示す図である。

【図2】 同実施形態における交換局および無線基地局の構成を示すブロック図である。

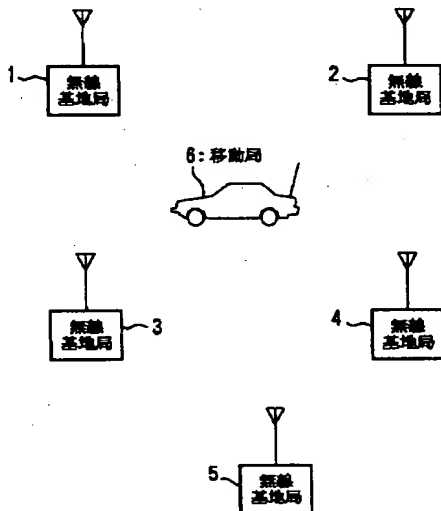
【図3】 同実施形態における移動局が使用する無線基地局の選択方法を説明する図である。

【符号の説明】

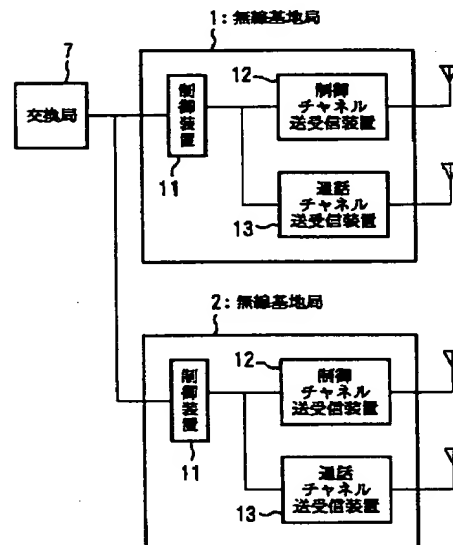
1～5 無線基地局

6 移動局

【図1】



【図2】



【図3】

	制御チャンネルの 受信電界強度	基地局のチャンネル 使用率	候補局	選択局
無線基地局 1	8dB μ V	45%	×	×
無線基地局 2	25dB μ V	90%	○	×
無線基地局 3	22dB μ V	25%	○	○
無線基地局 4	20dB μ V	30%	○	×
無線基地局 5	14dB μ V	65%	×	×